



**Remarks**

The amendments described below leave a total of 21 claims, including 4 independent claims, pending in this application. This response is filed within 1 month from the end of the shortened statutory period for response, which expired on March 22, 2001. The applicant has submitted cheque No. 51097 in the amount of \$208.00 in payment of the following fees:

One extra claim	\$18.00
One extra independent claim	\$80.00
One month extension fee	\$110.00.

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In the Office Action, the Examiner made reference to 3 documents:

<u>Document</u>	<u>Date</u>	<u>Inventor</u>
US 6,013,040	January 2000	Morgenstern
US 5,328,245	July 1994	Marks et al.
US 5,286,083	February 1994	Mattison

**Explanation of Amendments**

In the Office Action, the Examiner objected to claim 10, but stated that claim 10 would be allowable if re-written in independent form including the limitations of the base claim and all intervening claims. The Applicant has amended claim 10 to include the limitations of independent claim 1 and dependent claim 9 and has thus complied with the Examiner's request.

The Applicant has added a new set of claims 14-21, which include a plurality of vertically extending members (for example, slats 84) which are laterally spaced apart for at least a portion of their height (for example, by slots 86).



## **Response to Objections / Rejections**

### **The Present Invention**

Claim 1 of the present application defines a backrest with vertically extending members (for example, slats 84 shown in Figure 1) that engage separate portions of a person's back when the person is seated in the chair. Each vertically extending member is independently movable to allow the backrest to conform to the shape of the person's back.

Claim 11 of the present application defines a one-piece backrest that includes at least two slats extending between the top and bottom of a frame. The Concise Oxford Dictionary defines a slat as a "thin, narrow piece of wood or plastic or metal" (8<sup>th</sup> Edition, 1990, page 1141). Each slat is resilient so as to be responsive to a force applied to it by a person's back to produce a responsive force.

### **Mattison**

The Examiner rejected claim 1 as anticipated by Mattison. In particular the Examiner stated that ribs 43, 44 and 45 form vertically extending members which are inherently flexible.

Mattison discloses a backrest with an interior integrally formed structural member 15 (Mattison, column 2, lines 16-18). The interior member 15 is continuous and includes ribs 43, 44 and 45 which connect a first surface 42 with indentations 47, 48 and 49 on a second surface 40. Ribs 43, 44 and 45 are provided to increase the structural rigidity of Mattison's back rest, thereby allowing the interior member 15 to be made of a thinner material (Mattison, column 2, lines 46-49). Accordingly, ribs 43, 44 and 45 are not intended to be flexible like the vertically extending members of claim 1, but are included by Mattison to increase the structural rigidity of his backrest.

Furthermore, the fact that ribs 43, 44 and 45 actually connect the first and second surfaces of the interior member 15 means that neither the ribs 43, 44, 45, nor the

indentations 47, 48, 49 nor the portions of the first surface 42 between the indentations are capable of separate movement to conform to a person's back. (Mattison, column 2, line 42-52). This is inconsistent with the independent movement of the vertically extending members of the present invention.

It is respectfully submitted that neither the ribs 43, 44 and 45 of Mattison's device nor any other part of it fall within the meaning of "flexible, independently moveable, vertically extending members" as set out in claim 1. Accordingly, it is respectfully submitted that Mattison does not anticipate claim 1.

The Examiner also rejected claim 11 as anticipated by Mattison. The ribs 43, 44 and 45 of Mattison's back rest are an integral construction (i.e. they are actually parts of a continuous interior member 15) and are not thin narrow strips of material. Furthermore, the slats are not resilient so as to be responsive to a force applied to a person's back so as to produce a responsive force. In contrast, ribs 43, 44 and 45 are intended to make the interior member more rigid and less flexible.

The Applicant respectfully submits that Mattison's device does not anticipate the backrest of claim 11. In fact, the usage of ribs 43, 44 and 45 to reinforce Mattison's interior member is contrary to and incompatible with the flexible slats of the present invention.

The Examiner also rejected claims 2-7 and 12-13 in view of Mattison pursuant to 35 U.S.C. 102(b). Claims 2-7 are dependent on claim 1 and claim 12-13 are dependent on claim 11. It is respectfully submitted that these claims are patentable over Mattison for the same reasons as their respective base claims.

In particular, claim 6 includes the limitation that the back rest has a front and a back and that the vertically extending members support the back of a person seated in the chair without engaging any structural member behind the vertically

extending members. The portions of Mattison's integral structural member that actually support a person's back are the first surface sections 42 which are positioned between ribs 43, 44 and 45. First surface 42 is support by ribs 43, 44 and 45, which are clearly positioned behind first surface 42. Accordingly, it is respectfully submitted that Mattison specifically does not anticipate claim 6.

## **Marks**

The Examiner also rejected claim 1 on the basis that it is anticipated by Marks. The Examiner made reference to vertically extending members 42, 44 which the Examiner described as being "inherently flexible".

Marks describes a backrest with number of segments 18 capable of sliding backward and forward (i.e. away or towards the back of a person seated on seat 12). The segments 18 themselves are stacked vertically on a support bar 16 to form an adjustable back 14. Each segment 18 is biased to a forward position by a rubber band 38. When a person sits on the seat 12, the person's back applies a force to some or all of the segments 18, which slide backwards in response.

Marks' backrest is substantially different from the backrest of claim 1. The segments 18 are not flexible, and in fact, must be rigid in order to transfer the force from the user's back to the rubber bands 38. Accordingly, the segments 18 are not "flexible ... vertically extending members" within the meaning of claim 1 of the present application.

Furthermore, each segment 18 is only about 3/4 inch thick (Marks, column 4, lines 11-13). The applicant respectfully submits that Marks does not have "vertically extending" members within the meaning of claim 1 of the present application.

The plurality of vertically extending member of claim 1 are independently movable and engage a portion of the person's back so as to conform to the shape of the person's back. As the members are vertically extending, they engage laterally

spaced portions of the person's back. In contrast, the segments 18 of Marks' device are only 3 inches across in the preferred embodiment, and therefore cannot provide support to a substantial lateral portion of the user's back (Marks, column 4, lines 18-20).

In light of these substantial differences between Marks and the backrest of claim 1 and the lack of any teaching in Marks' in the direction of the present invention, it is respectfully submitted that Marks does not anticipate the backrest of claim 1.

Similarly, the segments 18 of Marks' device cannot be considered "at least two slats extending between the top and the bottom" of the frame of Marks. It is respectfully submitted that Marks does not anticipate claim 11 and in fact does not even provide a solution to the problem of providing different amounts of support across a lateral section of a person's back.

The Examiner also rejected claims 2 and 9 which are dependent on claim 1 and claim 12 and 13 which are dependent on claim 11 as anticipated by Marks. It is respectfully submitted that these claims are not anticipated for the same reasons as their respective base independent claims.

### **Morgenstern**

The Examiner rejected claim 1 as anticipated by Morgenstern. Morgenstern describes a power actuated lumbosacral backrest 10. The Examiner stated that undulating forms 16 are inherently flexible to allow the backrest to conform to the back of a user.

Morgenstern discloses a series of steel or plastic plungers 17 which follow against the faces of the undulating forms 16 formed in a frame 11. Frame 11 is made of a durable plastic or metal material (Morgenstern, column 2, line 45 – 46). The plungers 17 are assembled in a transverse spindle 15 and move towards and away from a person's back as spindle 15 is raised and lowered under the control

of motor 18. As the plungers move towards and away from the person's back, they provide a massaging action (Morgenstern, column 2, lines 48-63). One of the purposes of Morgenstern's device is to establish a "transverse plane of rigidity" (Morgenstern, column 1, line 51) – in the direction defined by spindle 15.

Morgenstern's device is very different from the backrest of claim 1. Undulating forms 16 would not be understood by a person skilled in the art to be either flexible or independently moveable. Undulating forms 16 are required to support the rigid plunger 17. In order to maintain the "transverse plane of rigidity, undulating forms 16 must either be rigid or supported by an element (such as frame 11) which prevents them from substantially deforming. Furthermore, undulating forms 16 do not support a person's back when Morgenstern's device is in use. The plungers 17, which do actually support the person's back, do not conform to the shape of a person's back but assume a position based on the contour of the undulating forms 16, to provide a massage action. Furthermore, the plungers 17 do not extend vertically, but instead move vertically to massage a small lateral section of a person's back at a time. Morgenstern's device does not recognize or address the need to provide different amounts of support to different sections of a person's back through the use of independently movable members that engage separate portions of the person's back. Morgenstern's device requires substantially rigid undulating forms 16 and plunger 17, and is therefore entirely inconsistent with the backrest of claim 1.

Accordingly, it is respectfully submitted that Morgenstern does not anticipate claim 1.

The Examiner also rejected claims 2-5 and 7-8 as anticipated by Morgenstern. These claims are dependent on claim 1 and the Applicant respectfully submits that these claims are patentable for the same reasons.



### **New Claims**

The Applicant has added a new independent claim 14 and dependent claims 15 - 21. Claim 14 includes a plurality of vertically extending members that are laterally spaced apart for at least a portion of their heights to permit independent movement. None of the prior art cited by the Examiner discloses a backrest with such a structure. Accordingly, the Applicant respectfully submits that these newly added claims are patentable over the cited references.

### **Conclusion**

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached pages are captioned **"Version with markings to show changes made."**

In view of the foregoing comments, it is respectfully submitted that the application is now in condition for allowance. If the Examiner has any further concerns regarding the language of the claims or the applicability of the prior art, the Examiner is respectfully requested to contact the undersigned at 312-661-2100.

Respectfully submitted,

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In the Claims:

Please amend claim 10 to read as follows:

10. [amended] ~~[The backrest of claim 9]~~ A backrest for attachment to a chair having a seat, the backrest comprising:
- (a) a support structure having a top and a bottom; and,
  - (b) a plurality of flexible, independently moveable, vertically extending members positioned to engage at least a portion of a back of a person when the person is seated in the chair, wherein the vertically extending members have a bottom portion that is vertically adjustable, and wherein the bottom portion is engagable at a plurality of vertically spaced apart engagement members provided on a bottom portion of the back rest,
- whereby the backrest conforms to the shape of the back of the person.

Please add the following new claims:

14. [newly added] A backrest for attachment to a chair having a seat, the backrest comprising:
- (a) a support structure having a top and a bottom;
  - (b) a plurality of vertically extending members, said vertically connected members being laterally spaced apart for at least a portion of their height to permit independent movement of adjacent vertically extending members,



wherein each of the vertically extending members supports a longitudinal section of at least the lumbar region of a person seated on the chair.

15. [newly added] The backrest of claim 14 wherein the vertically extending members support at least the lumbar region of the person without engaging a supplemental support member.

16. [newly added] The backrest of claim 14 wherein the vertically extending members are adjustable for controlling the amount of support provided to the lumbar region of the person.

17. [newly added] The backrest of claim 14 wherein the vertically extending members have a top portion and a bottom portion, and wherein the vertically extending members are adjustable by raising or lowering one of the top portion or the bottom portion.

18. [newly added] The backrest of claim 17 wherein one of the top portion or the bottom portion is attached directly to the support structure and the other of the top portion or the bottom portion is engagable at a plurality of vertically spaced apart engagement members provided on the support structure.

19. [newly added] The backrest of claim 16 wherein the vertically extending member has a bottom portion that is vertically adjustable to vary the amount of support provided to the lumbar region of the person.

20. [newly added] The backrest of claim 19 wherein the bottom portion is engagable at a plurality of vertically spaced apart engagement members provided on a bottom portion of the support structure.

21. [newly added] The backrest of claim 19 wherein the support structure comprises a frame and a support shell mounted thereon and wherein the vertically

extending members are provided on the support shell at one vertical end thereof and wherein the engagement members are provided on the frame.